



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/706,645

11/12/2003

Charles R. Rapier

1856-42801 (40183)

7027

31889

7590

05/18/2006

EXAMINER

WARTALOWICZ, PAUL A

DAVID W. WESTPHAL

CONOCOPHILLIPS COMPANY - I.P. Legal

P.O. BOX 1267

PONCA CITY, OK 74602-1267

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,645

Applicant(s)

RAPIER ET AL.

Examiner

Paul A. Wartalowicz

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25,40-49,76,77,80 and 81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25,40-49,76,77,80 and 81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/3/04, 2/10/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on February 24, 2006 have been fully considered but they are not persuasive.

Applicant argues that the searches for the Groups I and II should significantly overlap and thus the search burden would not be serious.

This argument is not persuasive for the following reason: the search burden is sufficient to warrant restriction due to the following reasoned explanation. The search for Group I includes 501/152,153; 428/688, 701; these class/subclass search are necessary for Group I but not Group II. The search for Group II includes 264/629,652,653,681; these class/subclass search are necessary for Group II but not Group I. By this explanation, the search for each Group is sufficiently different to warrant restriction.

The restriction is deemed PROPER and FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 14, 16-21, 40-41, 45-49, 76-77, and 80-81 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamashita et al. (U.S. 4906176).

Yamashita et al. teach a support (col. 4, lines 5-8) comprising alpha-alumina (col. 4, lines 39-41) and a composite oxide of aluminum and lanthanum in an amount of at least 50% based on the total amount of support (composite oxide of aluminum and lanthanum is rare earth aluminate, col. 4, lines 45-48), wherein the ratio of lanthanum oxide to aluminum oxide is 1 to 99 (col. 5, lines 5-10) wherein the composite oxide has a composition of 1 to 20 molar % of the oxide of at least one member selected from the group consisting of lanthanum, neodymium and praseodymium, and the balance being alumina (meets the limitation wherein the rare earth aluminate has a molar ratio of aluminum to rare-earth metal greater than 5, col. 18, lines 53-59) and wherein the composite oxide has a specific surface area of greater than $10 \text{ m}^2/\text{g}$ and a beta-aluminate structure (col. 4, line 66-col. 5, line 5) and wherein a mixture of aluminum and lanthanum are joined in an intimate mixture (col. 7, lines 36-38) and wherein a slurry of the composite oxide (rare earth aluminate) is applied to alpha alumina to form a coating (col. 7, lines 10-12, 15-18) and wherein calcining conditions are in a range of from 1100°C to 1400°C (col. 7, lines 1-5) and wherein the starting materials for aluminum is a hydroxide (gibbsite is a hydroxide of aluminum, col. 7, lines 42-44) wherein the support is impregnated with palladium (col. 12, lines 30-34).

As to limitations wherein calcining at a temperature greater than 1000°C , and wherein calcining is done at a temperature between 1000°C and 1600°C and wherein calcining is done at a temperature between 1100°C and 1400°C and wherein the rare earth aluminate and the alumina phase are intimately mixed, it appears that the instantly claimed product by process is the same as that which is claimed (support made by

mixing and calcining). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*. 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

Claims 1, 3-7, 9-11, 13-17, 19-25, and 40-49 are rejected under 35 U.S.C. 102(b) as being anticipated by McCarty et al. (U.S. 6015285).

McCarty et al. teach a support (col. 3, lines 25-28) wherein the support comprises lanthum oxide hexa-aluminate (col. 3, lines 26-30) and lanthanum oxide alumina hexa-aluminate (meets the limitation wherein hexa-aluminate and alpha-alumina or theta-alumina comprises a support, col. 3, lines 28-31) wherein barrier layer comprises $\text{La}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ hexa-aluminate (meets the limitation wherein the catalyst support comprises between about 1 wt% and about 10 wt% of lanthanum, col. 12, lines 35-38) and wherein alpha alumina comprises the barrier layer (col. 12, lines 30-35) and has a perovskite structure (col. 5, lines 1-29) and wherein the surface area of the support is approximately $50 \text{ m}^2/\text{g}$ and calcination temperatures of 1150°C (col. 9, lines 40-48) and wherein gamma-alumina is a precursor (col. 8, line 65-col. 9, line 5) and wherein palladium is a catalyst (col. 3, lines 30-33)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1754

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11, 13, 15, 22-25, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (U.S. 4906176) in view of McCarty et al. (U.S. 6015285).

Yamashita et al. teach a support as described above in claim 1. Yamashita et al. fail to teach wherein the rare earth aluminate has a chemical formula of LnAl_yO_z , where y is between 11 and 14; and z is between 18 and 23, and where Ln comprises lanthanum, neodymium, praseodymium, samarium, cerium or combinations thereof and wherein the rare earth aluminate comprises a lanthanum hexaaluminate and further comprising a rare earth aluminate with a perovskite structure and wherein the aluminum-containing precursor comprises at least one transition alumina selected from the group consisting of gamma-alumina, delta-alumina, chi-alumina, rho-alumina, kappa-alumina, eta-alumina, and theta-alumina.

McCarty et al., however, teach a support (col. 3, lines 25-28) wherein $\text{La}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ hexa-aluminate is the support of the purpose of having low reactivity with substrate interface (col. 5, lines 1-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein $\text{La}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ hexa-aluminate is the support in Yamashita et al. in order to have low reactivity with substrate interface (col. 5, lines 1-29) as taught by McCarty et al.

As to the limitation wherein the aluminum-containing precursor comprises at least one transition alumina selected from the group consisting of gamma-alumina, delta-alumina, chi-alumina, rho-alumina, kappa-alumina, eta-alumina, and theta-alumina, McCarty et al. teach wherein gamma-alumina is impregnated with lanthanum and then calcined in air at about 1000°C (col. 8, line 65-col. 9, line 4) for the purpose of making a catalyst which is later impregnated with palladium (col. 9, lines 3-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein gamma-alumina is impregnated with lanthanum and then calcined in air at about 1000°C (col. 8, line 65-col. 9, line 4) in Yamashita et al. in order to make a catalyst which is later impregnated with palladium (col. 9, lines 3-8) as taught by McCarty et al.

As to claims 24 and 25, Yamashita et al. teach wherein calcining conditions are in a range of from 1100°C to 1400°C (col. 7, lines 1-5).

As to the limitation further comprising a rare earth aluminate with a perovskite structure, McCarty et al. teach wherein a perovskite structure for a support for the purpose of imparting a high melting point (col. 5, lines 1-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein a perovskite structure for a

Art Unit: 1754

support in Yamashita et al. in order to impart a high melting point (col. 5, lines 1-29) as taught by McCarty et al.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (U.S. 4906176) in view of McCarty et al. (U.S. 6015285) and Kato et al. (U.S. 4793797).

Yamashita et al. teach a support as described above in claim 1. Yamashita et al. fail to teach wherein the rare earth aluminate has a chemical formula of MAI_yO_z , where y is between 11 and 12; z is between 18 and 19; and M comprises a combination of lanthanum and samarium.

Kato et al., however, teach a heat resistant carrier (support, col. 2, lines 55-58) wherein lanthanum and samarium are included in a beta-alumina support (col. 16, lines 30-35) for the purpose of employing multiple rare-earth metals in a known carrier comprising beta-alumina.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein lanthanum and samarium are included in a beta-alumina support (col. 16, lines 30-35) in Yamashita et al. in order to employ multiple rare-earth metals in a known carrier comprising beta-alumina as taught by Kato et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Wartalowicz
May 12, 2006



STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700